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ABSTRACT

This paper discusses research and developments in the study of Papuan languages, a designation formerly used to group those languages which were geographically close to, but structurally quite different from, the Austronesian languages; the grouping had nothing to do with relationships among the Papuan languages themselves. Increasing knowledge and the discovery of new languages which provide recognizable links between languages which appeared to be unrelated have led to the classification and typology of the Papuan languages. This paper considers the groupings that have been established and problems in classification. The author discusses research methodology and presents lexical, typological, and structural criteria for establishing relationships. In the final sections, the author traces the language development and migration in the area and summarizes his classification of Papuan languages. (VM)

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THE CLASSIFICATION OF PAPUAN LANGUAGES AND ITS PROBLEMS

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1. DEVELOPMENTS UNTIL THE MID-SIXTIES

The last fifteen years have seen an almost unparallelled progress in our understanding of the linguistic problems of one of the linguistically most complex and forbidding looking areas of the world: the New Guinea area and the Papuan language world in it.

This area which stretches from the islands of Timor, Alor and Halmahera in the west across the New Guinea mainlang, New Britain, New Ireland and the Solomon Islands to the Santa Cruz Archipelago in the east, was found towards the end of the nineteenth century (Ray 1893) to contain in addition to the then already quite well known Austronesian (or Malayo-Polynesian) languages, languages which were quite different from Austronesian languages and from each other, and which were given the name 'Papuan' languages. A very large number of such languages, most of them characterised by great morphological complexity, was discovered in the years to follow, and because only a small number of them could be combined into usually quite small groups which at the same time seemed to differ radically from each other, this name became a purely

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negative classificatory term which simply indicated that languages described as 'Papuan' were not Austronesian (or Australian), and were not necessarily related to each other - in fact most of them were a priori assumed to be unrelated to any other Papuan language. This resulted in the formidable picture of a geographically comparatively small area containing a vast conglomerate of hundreds of highly complex, mostly genetically unrelated, languages which were generally spoken by small to very small speech communities only.

This unusual picture was first seriously challenged when the results of pioneering work by Capell (1948-49) in the highlands areas of Australian New Guinea suggested the existence of a very large group of interrelated languages there, with many of these languages spoken by speech communities numbering quite a few thousand, some even tens of thousands of speakers. Capell's results were taken up and his work continued by the present writer in 1958-59 and led to the definite establishment of a group of interrelated languages of even much greater extent than originally suspected. This group was given the name East New Guinea Highlands Stock, and it was combined with several distantly related language groups into an East New Guinea Highlands Phylum (Wurm 1960, 1961, 1962, 1964). Intensive linguistic work carried out in Australian New Guinea mostly under the auspices of the Australian National University and the New Guinea Branch of the Summer Institute of Linguistics and largely by missionary linguists in West New Guinea around the same time and in the years to follow, in West - then Dutch - New Guinea also a few years earlier, led, in rapid sequence, to the establishment of a number of other sizeable

groups of interrelated languages on the New Guinea mainland. By the mid-sixties, the following were known or thought to exist:

The Ndu Family in the Middle Sepik area between the Sepik River and the north coast (Laycock 1965).

The OK Family in the central 'hub' area of the New Guinea mainland (Healey 1964a, b).

The Awyu-Dumut Family in south-eastern West Irian (Drabbe 1950, 1957, 1959, Healey 1964a).

The Central South Coast or Kamoro-Sempan-Asmat Family in the southern central coastal and inland areas of West Irian (Drabbe 1953, Voorhoeve 1968).

The Yaqay-Marind-Boazi, Yelmek-Maklew and Frederik Hendrik Island Groups in south-eastern West Irian. Soon after the mid-sixties, they were recognised as constituting families (Voorhoeve 1968).

The Dani Family in the Baliem Valley area of the Highlands of West Irian (Boomley 1961, 1967).

The Ekagi-Woda-Moni Family in the Wissel Lakes region in the western part of the highlands of West Irian (Larson, n.d.).

The West Papuan Phylum comprising Papuan languages on Timor and Alor, the northern half of Halmahera, and the Vogelkop and Bomberai Peninsulas (Cowan 1957b, 1960, 1965, Anceaux 1958, also Capell 1944).

The North Papuan Phylum including the languages on the Upper Tor and Tami Rivers, and also the Sentani-Demta-Nimboran Group situation between the Tor and Tami Rivers (Cowan 1957a).

A group of then undefined extent in the Huon Peninsula (Wurm 1960, Capell 1962b).

A group comprising languages spoken by Kukukuku type people in the Watut River and Menyamya regions of the Morobe District of Australian New Guinea, and in adjacent areas (Wurm 1960).

The Awin-Pare Family between the Upper Fly and Upper Strickland Rivers in the Western District of Australian New Guinea (Healey 1964a).

The Left May Family west of the May River, a southern tributary of the Sepik River (Healey 1964a).

The Upper Sepik Phylum in the Upper Sepik area (Laycock 1965b).

A group of languages in the Mt. Goliath area in eastern West Irian (Healey 1964a).

The establishment of these groups in contrast to earlier views expressed concerning the assumed radical differences between most Papuan languages was the direct result of increasing knowledge about Papuan languages and in many instances, the discovery of new languages which constituted recognisable links between languages which appeared to be unrelated when compared directly with each other.

2. THE CENTRAL NEW GUINEA MACRO-PHYLUM

Already during the establishment of these groups, there were indications suggesting the possible existence of a distant relationship between members of different groups. In some cases, a few of these indications were those of a quite close interrelationship, but they did not seem to be

supported by much additional evidence. For instance, the singular and plural subject marker with verbs were found to be near-identical and showing regular sound correspondences, in a number of languages of different groups which were extending from the Huon Peninsula in north-eastern Australian New Guinea to the highlands of West Irian, and the singular object markers with verbs were found to be near-identical over an even wider area which was in part coinciding with that in which the subject markers were similar.

On the basis of this kind of evidence, and apparently scanty, but undeniable, agreements in basic vocabulary, a number of the groups mentioned above as well as some additional groups established after 1965, were, after an earlier attempt by C. and F. Voegelin (1965), combined into a Central New Guinea Macro-Phylum by the present writer in 1968 while he was completing the manuscript for Wurm 1971. It covered three-quarters of the New Guinea mainland. Mention must be made, at the same time, of Greenberg's work (1960, 1971) who suggested, on the basis of lexical and some structural evidence, that most Papuan languages of the New Guinea area, along with those of the Andaman Islands and of Tasmania, could be combined into a single super-group.

3. THE TRANS-NEW GUINEA PHYLUM, SEPIK-RAMU PHYLUM AND OTHER PHYLIC GROUPS

3.1. THE TRANS-NEW GUINEA PHYLUM

Shortly after 1968, the classification of identical language families as members of different, but adjacent,

phyla by different linguists, and the discovery of a large number of regular sound-correspondences in words of languages belonging to what was believed to be two different, only distantly related phyla gave indications that the interrelationship of languages within the Central New Guinea Macro-Phylum might be closer than suspected. In order to investigate the problem on a systematic basis, McElhanon and Voorhoeve (1970) decided to carry out a large-scale comparison of a number of basic vocabulary items in languages of three geographically widely separated phylic members of the Central New Guinea Macro-Phylum, i.e., the Central and South New Guinea Phylum in the western and southern central part of Papua-New Guinea and the southern portion of West Irian, the Finisterre-Huon Phylum in the Huon Peninsula area in north-eastern Australian New Guinea and the Binandere Family - a family in the so-called South-East New Guinea Phylum (Wurm 1971) - in the northern part of the south-eastern tail-end of the mainland. The intervening parts of the Macro-Phylum were, on purpose, almost entirely left out of consideration, and other potentially related phyla were drawn on only marginally.

In the course of this work, 85 vocabulary items were compared, and the surprising result was that 53 of them yielded interphylic series of probable cognates whose similarities on the level of sound correspondences were in the majority of the cases of such a high order that they seemed to be quite acceptable as a proof of a relatively close genetic relationship between the languages involved. On the basis of their impressive results, the two authors proposed that the notion of the Central New Guinea Macro-Phylum as consisting of a number of separate, only distantly

related phyla be strongly modified and that the macro-phylum be looked upon as containing a geographically very extensive nucleus for which they suggested the name Trans-New Guinea Phylum. They assumed that this phylum would probably be found to contain several more of the phyla originally included in the Central New Guinea Macro-Phylum.

The present writer took it upon himself to carry out the next obvious steps in this work, i.e., the comparison of members of these potential other phyla with the languages already definitely included in newly postulated Trans-New Guinea Phylum. The first group taken into consideration was the large East New Guinea Highlands Stock which was, as the major portion of the original East New Guinea Highlands Phylum (Wurm 1971a) lying between the original Central and South New Guinea and the Finisterre-Huon Phyla. The results of this comparison completely supported McElhanon's and Voorhoeve's assumptions. When the present writer compared those fifty-three lexical items for which series of interphylic cognate had been established by the two authors with their equivalents in languages of the various families of the East New Guinea Highlands Stock, only an average of 25% of the items compared could not be tied in with the interphylic cognate series already established. This work was then extended to all other original members of the Central New Guinea Macro-Phylum, with the results demonstrating that most of them could be, on the basis of this lexical evidence, regarded as probable members of a new Trans-New Guinea Phylum, except that the

evidence appeared to be inadequate in the case of three original phylic groups located in the Sepik Districts, i.e., the Middle Sepik and the Upper Sepik Phyla, and the phylum-level Sepik Hill Family - while at the same time it was shown by D. Laycock (see 3.2.) that the previously established relationship of these three groups to each other was much closer than had formerly been assumed to be the case. At the same time, some groups previously not included in the Central New Guinea Macro-Phylum were found to be probably members of the new large Trans-New Guinea Phylum, in particular several groups located in the border area between Australian New Guinea and West Irian in the norther half of the mainland, and some groups in the Bomberai Peninsula in western West Irian.

In the course of this work, the reconstruction of Trans-New Guinea Phylum proto-forms of vocabulary items was attempted, and proved successful in quite a number of instances (Wurm 1972).

3.2. THE SEPIK-RAMU PHYLUM

While the present writer was working on the establishment of the Trans-New Guinea Phylum in its present, extended form, D. Laycock was carrying out an extensive study of the extremely complex language situation in the West and East Sepik Districts on the basis of the results of his own extended fieldwork in the area, and also taking into account Z'graggen's(1971) findings in the languages of the western part of the Madang District. While it had been recognised before, as has been pointed out in 3.1., that three major established groups in the area, i.e., what

had been known as the Middle Sepik and the Upper Sepik Phyla, and the Sepik Hill phylum-level Family, were related to each other, Laycock found that their relationship was much closer than previously believed to be the case, and he succeeded in combining them and a considerable number of other groups in the Sepik Districts whose existence he had largely established himself, into a single phylum. He found that this phylum also included the languages classified by Z'graggen (1971) as constituting an independent Ramu Phylum, and named the newly established large phylum the Sepik-Ramu Phylum (Laycock 1972).

3.3. THE TORRICELLI PHYLUM

The only language group of significant size in the Sepik-Ramu area which Laycock could not include into his newly established Sepik-Ramu Phylum was the Torricelli Phylum established earlier by himself (Laycock 1968) located in three discontinuous areas - a) in the Torricelli Mountains region and extending to the coast in one area, b) to the west of the lowest part of the Sepik, and c) at a coastal point in the western Madang District.

3.4. OTHER MAJOR PHYLA

In addition to the three major phyla mentioned above in 3. 1-3., two further extensive phyla have been established which have been named the West Papuan and East Papuan Phyla.

3.4.1. THE WEST PAPUAN PHYLUM

This phylum which is located in the western part of West Irian was originally established by Cowan (1957b, 1960, 1965) taking into account work carried out by Anceaux (1958) in the languages of the Bomberai Peninsula and by Capell (1944) in those of Timor. It was then believed to comprise the Papual languages of Timor (and Alor), Northern Halmahera, the Vogelkop Peninsula, Yapen Island in the Geelvinck Bay, and the Bomberai Peninsula. Greenberg (1971) arrived at similar conclusions, relying in part on unpubli hed materials put at his disposal by Anceaux from the latter's field notes.

The present writer adhered to that classification in Wurm 1971a, suggesting at the same time a sub-division of the Bomberai Peninsula languages into several separate stocks.

Recent work carried out by the present writer and C. L. Voorhoeve on the classification of the Bomberai Peninsula languages in connection with work on the Trans-New Guinea Phylum has shown that a number of them belonged clearly and some possibly to the Trans-New Guinea Phylum, with most of them being members of established stocks within it. Some of the Bomberai Peninsula languages, curiously enough those bordering on the bulk of the Trans-New Guinea Phylum and separating the Bomberai Peninsula languages which belong to that phylum, from the main body of it, show closer connections with the Vogelkop Peninsula languages, though they contain a fairly strong Trans-New Guinea Phylum element which is however also observable to a lesser extent, in the Vogelkop Peninsula languages, and is quite strongly in evidence in Timor. The exact subdivision

of the Vogelkop Peninsula languages into stocks and families is still a matter for further study, though suggestions have been put forward by the present writer (Wurm 1971) on the basis of Cowan's earlier numerous publications (e.g. Cowan 1957b, 1960), and in a somewhat different form by Greenberg (1971).

3.4.2. THE EAST PAPUAN PHYLUM

The Papuan languages of the island world to the east of the New Guinea mainland and extending from Rossel Island off the tail-end of it and from New Britain and New Ireland, across the Solomon Islands chain to the Reef and Santa Cruz Islands in the east had been looked upon as constituting a number of isolates except for the languages of Bougainville Island which had been combined by Allen and Hurd (1965) into the Bougainville Phylum, and those of the Reef and Santa Cruz Islands which had been recognized as constituting a Family (Davenport 1962, Wurm 1969, 1970). At the same time, possible connections between at least some of these languages had been suggested by Capell (1969) and the present writer (Wurm 1971).

Recent work by the present writer on the basis of earlier studies, his own materials and materials kindly put at his disposal by A. Capell, G. Grace, A. Chowning and B. Hackman has resulted in the combination of all the island languages into a single phylum which has been named the East Papuan Phylum in analogy to the West Papuan Phylum. Like the latter, it shows quite noticeable Trans-New Guinea Phylum influence.

3.5. MINOR GROUPS

Recent studies, mainly carried out by Laycock (1972) and Franklin et al. (1972) have established the existence of five minor phylic groups of Papuan languages which can at this stage not be related to any of the large phyla, or to each other. They are located in Australian New Guinea except that two of them overlap into West Irian and they are as follows:

The Sko phylum-level Stock in the northern central coastal and hinterland area, with the smaller portion of it located on the West Irian side.

The Kwomtari phylum-level Stock in the north-eastern part of the western Sepik District. One of its geographically separate member languages is situated just across the West Irian border.

The Left May phylum-level Family on the May River, a southern tributary of the Upper Sepik.

The Inland Gulf phylum-level Stock located in three geographically discontinuous sections in the western part of the Gulf District.

The Toaripi or Eleman phylum-level Family situated in coastal areas of the eastern part of the Gulf District.

3.6. ISOLATES

In addition to the five large phyla and the five minor phylic groups, twenty-five Papuan isolates are known or believed to exist in the New Guinea area. Thirteen of these are in Australian New-Guinea - five of them in the Western Sepik District, one in the Eastern Sepik, and in the Madang, one in the Morobe, one in the

Western, three in the Gulf, and one in the Northern Districts. The remaining twelve are in West Irian, all of them in the northern half of the main part of it.

On several of these isolates the information available is so inadequate that an attempt at their classification is not possible at this stage. With increasing knowledge, it seems quite likely that quite a few of these isolates will be found to be members of already established groups, or to belong to groups, if any, still to be discovered in the linguistically unknown parts of northern West Irian which are the last linguistic blanks left in the New Guinea area.

4. PROBLEMS IN CLASSIFICATION

Already during the present writer's work directed towards the establishment of the extended version of the Trans-New Guinea Phylum, some serious problems impinging upon the classification of Papuan languages had become apparent:

In several languages which appeared to be quite radically different from Trans-New Guinea Phylum languages in their structure and also in most of their basic vocabulary (such as members of the Sko phylum-level Stock on the central northern coast of the mainland), a number of quite basic vocabulary items were found which obviously belonged to the Trans-New Guinea Phylum lexical stock and displayed regular sound correspondences when compared with their equivalents in Trans-New Guinea Phylum languages. Such basic vocabulary elements included personal pronouns. At the same time, some languages which seemed to belong to the Trans-New Guinea Phylum contained personal pronouns which were quite

different in form from those met with in the majority of the Trans-New Guinea Phylum languages, with these differing forms showing marked similarities to pronoun forms encountered in some non-Trans-New Guinea languages which were not necessarily geographically close to them. Similarly, the structures of some languages which showed strong links with Trans-New Guinea Phylum languages and had been included in the Trans-New Guinea Phylum, showed strong affinities to languages which had been placed outside the Trans-New Guinea Phylum.

All this, and several other phenomena of a comparable nature, suggested strongly that Papuan languages had exercised an extraordinarily large influence upon each other. It also seemed that notions held concerning the value of lexical comparisons in establishing relationships between languages, and views about the mixing of languages, might be in need of re-examination with regard to the Papuan linguistic field.

4.1. PERSONAL PRONOUNS

The question of the personal pronouns in Papuan languages constituted a special problem, and a summary of this issue may be called for at this point:

A study of the forms of the personal pronouns in over four-hundred and fifty Papuan languages by the present writer has shown that, with rare exceptions, these pronouns belong to three basic sets whose members are formally distinct, though one of them shows strong connections with the other two, and may well be ultimately derived from them. The distribution of these sets cuts across relationship boundaries in many cases.

In addition to these three basic sets, two subsets are present, as well as one limited set whose special nature manifests itself only in the form of the first person singular pronoun.

Pronouns belonging to the first basic set occur widely within and outside of the Trans-New Guinea Phylum. Outside the latter, they are most strongly in evidence in Timor and on the south coast of the Vogelkop Peninsula, as well as in the Sepik Sub-Phylum (i.e., the western half) of the Sepik-Ramu Phylum and in the New Britain-Bougainville Island area.

Pronouns of the second basic set are mainly encountered in the Northern Halmahera-Vogelkop Peninsula region and some adjacent areas, in a small part of the south-eastern portion of West Irian, the Trans-Fly area occupied by the Trans-Fly Stock of the Trans-New Guinea Phylum, the central north of the mainland, the Torricelli Phylum in the northern part of the West Sepik District, in three further areas in the Trans-New Guinea Phylum, two in the Australian New Guinea Highlands and one in the south-east, and finally in the Solomon Islands.

The third basic set is predominantly met with in the Northern Halmahera-Vogelkop Peninsula region, the Madang-East Sepik District area, with strong occurrences both in the Trans-New Guinea Phylum and the Ramu Sub-Phylum and adjoining parts of Sepik-Ramu Phylum - these two large phyla border on each other in that area - the central part of the Australian New Guinea Highlands in the Chimbu and Wahgi areas and areas adjacent to it in the south,

in a few parts of the south-eastern section of the Trans-New Guinea Phylum, and in northern New Britain. Weaker occurrences are met with along the northern coastal areas of the mainland as far as they are known, which is not the case along much of the West Irian portion of it. As has been pointed out above, it seems possible to derive several of the pronominal forms of this set from those of the first and second major sets, and it seems not unlikely that the third set is ultimately derived from them and the product of a mixing of those two.

The two subsets mentioned above are both sub-members of the first basic set. One of them is mainly found in the central north of the mainland and areas adjacent to it in the east, though a few occurrences have been observed in the southern part of the Vogelkop Peninsula. The other subset is largely limited to the Sepik Sub-Phylum of the Sepik-Ramu Phylum, and the Torricelli Phylum. Its peculiarities are most probably attributable to a sub-stratum influence in those areas.

The limited set referred to above is met with only in the Nor-Pondon (on the Lower Sepik) and Leonard Schultze River (south of the Upper Sepik) Sub-Phyla of the Sepik-Ramu Phylum, in the Torricelli Phylum, and in isolates in the Upper Sepik River area and in the Papuan Gulf region. It undoubtedly reflects an old substratum.

From the above discussion it is obvious that no simple one-to-one correspondence exists between the various pronominal sets found in Papuan languages and the established groups of probably interrelated languages. It can be observed that the bulk of the Trans-New Guinea Phylum languages, contains pronoun forms of the first set, though the presence of this set is by no means limited to Trans-New Guinea phylum

languages. Similarly, the second sub-set is a regional probably sub-stratum, feature characteristic of the western part of Sepik-Ramu area and met with in languages of two unrelated phyla. Finally, the limited set appears to be an old substratum feature found only in unrelated isolates and two highly aberrant sub-phylic members of the Sepik-Ramu Phylum. It seems to appear largely in conjunction with the typologocial feature of multiple-class systems, with this feature also present in languages adjacent to those in which the limited set occurs, though multiple-class systems are, to a limited extent, also encountered in other parts of the New Guinea area.

The picture is further complicated by the fact that a large number of Papuan languages distinguish two genders in the third person, and sometimes also the second person, singular. The majority of the languages showing this feature, have pronoun sets whose members predominantly belong to the second basic set. If gender distinction is indicatedin languages whose pronouns belong to the first set, the distinction is usually only denoted by a vowel change in the first set pronoun forms. However, in some languages in which the masculine third person singular belongs to another set, the feminine pronoun tends to belong to a different set again. This can be clearly observed in the Torricelli Phylum languages for instance.

An interesting fact in this connection is the occurrence of pronominal forms in a number of languages, predominantly located in the eastern half of the mainland and in its central south, which appear to be fused forms composed of pronominal elements belonging

to two different sets. In some languages which have no gender-distinction in the third person singular, the third person singular pronominal forms appear to be composed of two elements one of which corresponds to the masculine and the other to the feminine third person singular pronoun forms in languages with gender-distinction.

Another comparable feature is the fact that in some languages, for instance in the aberrant Trans-New Guinea Phylum languages of the Trans-Fly area, the free pronouns belong largely to the second set, whereas the bound object person markers with verbs belong predominantly to the first set.

4.2. TYPOLOGICAL FEATURES

As has already been briefly indicated in passing, there appears to be a tendency in Papuan languages towards a correlation between the presence of pronoun forms belonging to certain sets, and typological features.

In the light of this, it has been found that in many languages whose pronouns belong to the first set, the following features prevail: absence of gender and noun class systems with concord and overtly indicated with nouns and/or pronouns, but presence of noun-classification through the appearance of classificatory verbs; general tendency towards suffixing, though object markers with verbs may be prefixes; absence of overtly marked number forms of nouns; presence of sentence-medial verb forms as dinstinct from sentence-final verb forms; morphological complexity on the verb level usually very high - though often markedly less so with languages with pronouns of the first set which are outside the Trans-New Guinea Phylum - with great development

of aspectal, modal and temporal references, and references to varied sets of persons (subject, object, beneficiary, etc.).

Languages whose pronouns belong largely to the second set tend to display the following features: presence of a two-gender system overtly indicated with pronouns and person markers with verbs; general tendency towards prefixing, especially with regard to subject-markers with verbs and possessive affixes with nouns; presence of overtly marked number forms of nouns; absence of sentence-medial verbal forms; morphological complexity on the verb level usually very high, though less on the aspectual, modal and temporal levels than on the levels of person, gender and number indication, with many languages showing verb stem changes and suppletion in connection with the indication of the number of the object; morphological complexity on the nominal level can be quite high, in particular in connection with the number forms of the nouns.

Languages whose pronouns are largely members of the third basic set show characteristics which are either those associated with the pronoun forms of the first set, or with those of the second set, with the first possibility predominating.

In many instances, the differentiation between these two sets of typological features is not quite clear-cut. So for instance, many languages which have pronoun forms of the first set and, in general, display typological features associated with this set according to what has been said above, also have a

two-gender system overtly indicated with pronouns and person markers in verbs. Other such languages show an even more strongly mixed type in having, in addition, prefixed subject markers, and lacking utterance-medial verbal forms. Some also have number forms with nouns.

Languages with pronouns of the first subset again display features of either of the two main types, with several instances of mixture between the two. The same applies to most of the languages with pronouns of the second subset. Many of these show the somewhat simplified version of the characteristics of the first main type as referred to above in the discussion of that type with reference to langauges with pronouns of the first set which are not members of the Trans-New Guinea Phylum.

As has already been indicated, languages with pronouns of the limited set are generally characterised by a multiple-classifying system with elaborate concord, though they sometimes lack a two-gender system. Their morphologies are mostly of extreme complexity and display features of either or both of the two main types, plus some features quite unusual for Papuan languages such as incorporation of object nouns into the verb complex.

In addition to the types discussed so far, two further types may be mentioned which cannot be directly correlated with the occurrence of pronoun forms of one of the sets discussed, though with the first of these types, pronouns belonging to the first and third basic sets and the second subset predominate, whereas with the second type, the pronouns tend to belong to the second and third basic sets.

The characteristics of the first of these types are essentially those of the first of the two main types discussed above usually in a somewhat simplified form, but in addition, a two-gender system is present, as well as a multiple-classifying system with concord. Languages belonging to this type are in the Upper Sepik area in the vicinity of multiple-classifying languages to whose influence the presence of multiple-classifying systems in the languages under discussion may well be attributable.

The second of the two types under review is a comparatively simple type with relatively little morphological elaboration of a specific type. Such languages are mostly members of the Sepik-Ramu Phylum though some have been included with the Trans-New Guinea Phylum, or are outside of both. It appears that this feature may be original rather than resulting from the loss of complexity.

Some other types still exist - e.g. languages of the Sko phylum-level Stock on the central north coast of the mainland have a tonal morphology - but their importance for the Papuan languages as a whole is limited.

5. CLASSIFYING PAPUAN LANGUAGES

5.1. INTRODUCTORY REMARKS

All that has been said in the above discussion has been indicative of very strong influences of Papuan languages upon each other, and has an important bearing on the question of the classification of these languages.

In particular, it calls into question the validity of the lexicostatistical method which, with few exceptions, has been the basic tool for the classification of Papuan languages until fairly recently. While the value of this method for an initial crude attempt at classifying previously unclassified languages is undeniable, its usefulness in the Papuan linguistic field is very severely limited because of the tremendous prevalence of pervading influences of languages upon each other on virtually all levels which can reach a magnitude never conceived of in the tenets underlying the lexicostatistical method and the basic principles of genetic linguistics in general. Basic vocabulary items of one language which according to the postulates of lexicostatistics, are 'unborrowable', can often be found as quite obvious loan words in another totally unrelated language, pronouns, singly and in sets, are taken over by languages from other languages, and the structures of many languages have ostensibly undergone quite drastic changes under the influence of other, at times, unrelated, languages. Phonologies can change extensively under such an influence, and the only apparently relatively stable and persistent items and features in Papuan languages which, in consequence, have considerable diagnostic importance, in comparative and classificatory work, are constituted by verbs as lexical items, some structural features of verbs and their underlying principles, principles underlying pronominal systems - to a much lesser extent the pronouns themselves as lexical items - and semantic characteristics of grouping of lexical items (e.g., 'fire' and 'tree' can, in one language, be different meanings of one lexical item, but in another, the meanings of two different lexical items: such principles

are preserved in a particular language even if the lexical items themselves are borrowed into it from another language in which such items have semantic ranges which are completely at variance with those prevailing in the borrowing languages). There are several instance of languages especially in the Sepik-Ramu Phylum which show differing phonologies, relatively little cognation in nouns, and great differences in the form, but not the system, of their pronouns, but have many verbs in common, together with much of their verb morphology.

5.2. "MIXED" LANGUAGES

This is not the place to argue the case of "mixed languages" whose existence is strongly denied by many comparative linguists with the notable exception of A. Capell who has often been severely criticised for this (e.g. in the comments to Capell 1962b), and of A. Pawley (1969), but in the light of Grace's (1965) statement that very little is known about language mixing the present writer fully agrees with Pawley's comments that the main reason for our continuing ignorance in this field is the fact that most linguists are reluctant to believe that extensively mixed languages might exist. This is of course largely attributable to the fact that the genetic model does not allow for mixed languages which therefore constitute an unacceptable concept as such. This is rather unfortunate because the New Guinea area offers the probably best laboratory situations in the whole world for the study of language mixing: in several areas, two different, often

unrelated (e.g. one Papuan and one Austronesian) languages are spoken in two separate villages, whereas in a third community arising from an amalgamation into one village of Austronesian and Papuan speakers, the two languages show strong mutual influences and a mixed language may be developing. The villages of Pe, Ramo and Sumo (Papuan: Warapu language), Arop and Malol (Astronesian: Sissano language) and Sissano-Warapu (mixed) in the Sepik District constitute an excellent example and the thorough study of their languages by a comparative linguist and a sociolinguist would undoubtedly contribute materially to our knowledge of the nature of language mixing.

In fairness, it must be pointed out that most comparativists and geneticists are prepared to admit that a certain amount of borrowing, or mixing is present in all languages - apart from the obvious area of loans on the lexical level - but they either appear to maintain, at least by implication, that an inner core is present in every language which is impervious to borrowing and therefore constitutes the component which is relevant in a genetic classification of a language, (e.g. Hamp 1962), or they seem to feel that one component of a language is always dominant, even if borrowing or mixing on all levels of a language may be possible. This dominant element is in their view, the one which is drawn upon in a genetic classification of such a language, and represents that particular language in such an exercise.

Pawley (1969) is of the opinion that such a genetic classification which deliberately ignores elements in a language which lie outside the dominant component, in order to obtain an unambiguous, yes or no, classificatory

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* see D. C. Laycock, personal communication.

result, provides no adequate basis for the reconstruction of linguistic events, nor does it give an adequate picture of linguistic relationships.

This is undoubtedly true in extreme cases. For instance, which is the dominant component in languages such as Magori (Dutton 1971) in which the grammar is almost purely Austronesian, and the vocabulary mostly Papuan, or Maisin (Ray 1911, Strong 1911) in which the reverse is true? Or in the languages of the Reef Islands Santa-Cruz Family in which about half the basic vocabulary is reconstructably Austronesian (Wurm 1970), and the grammar an intricate mixture of Papuan and Austronesian elements.(Wurm 1969)?

However, for less extreme cases, the present writer feels, in contrast to Pawley's view, that a genetic classification based on the dominant element only can well be of value in the establishment of linguistic relationships, provided that the presence and nature of the non-dominant element is not ignored, but taken into account and its presence explained as far as possible in terms of sub-strata, borrowings, influences by other languages and the like. In extreme cases such as those mentioned above, the present writer suggests that the dominant element in the language structure, if one can be recognised, should be regarded as the dominant element in the language for the purpose of genetic classification, i.e., Magori should be regarded as Austronesian, Maisin as Papuan, and the Reef-Island Santa-Cruz Family languages also as Papuan because the Papuan structural elements in them are more basic - e.g., concern the verb structure -

than the Austronesian elements (Wurm 1969).

These principles constitute, in essence, the basis for the classification of Papuan languages, but need to be elaborated on (see 5.4.).

5.3. LEXICOSTATISTICAL CLASSIFICATION AND STRUCTURAL EVIDENCE

The first linguist to discuss the shortcomings and difficulties of the application of the lexicostatistical method to Papuan languages has been McElhanon (1969-70, 1970). He finds that the main problem of the use of the method as a survey tool is the fact that the presence of many loan words remain undetected and the results often skewed in the direction of a chain relationship. He feels that the frequent appearance of dialect and language chains in lexicostatistical classifications in the New Guinea area "provides considerable circumstantial evidence for concluding that the lexicostatistical method as usually applied is incapable of handling the phenomena caused by the wave principle and unable in many cases, if not in most cases, of providing an accurate sub-classification".

This statement which reflects the frustrations suffered by its writer in his attempting to classify, by the lexicostatistical method, the languages of the Huon Peninsula region which constitutes a particularly involved problem area in this respect, may perhaps be a little too strong when applied to the Papuan language area as a whole, though the essence of it according to which the lexicostatistical method can produce results which are only approximate, is fully acceptable.

While one obvious way to increase the accuracy and reliability of classificatory results arrived at by the

lexicostatistical method would be to identify loan words in a lexical corpus which is to be utilized for lexicostatistical purposes, by the application of the comparative method, and to eliminate them from the corpus, such an approach is often of little use in the Papuan linguistic field. There are two main reasons for this: a) serious comparative work is only just beginning in some areas, with only preliminary results available to date, whereas in many other areas no comparative linguistics work has been undertaken; b) in many instances, loan words may have entered a particular Papuan language thousands of years ago, and have undergone the same sound-change as those words which are part of the original, directly inherited lexical stock of the language. It is usually not possible to detect such loan words in the light of the low-level sophistication of present-day Papuan comparative linguistics.

To overcome the difficulty presented by unrecognised loans, Thomas and Healey (1962) have suggested a special refined lexicostatistical approach which aims at the detection of the presence of such unrecognised loans and their special treatment in computations for the purpose of circumventing the problem of chaining. McElhanon investigates the applicability of this approach to the lexicostatistical classification of the Huon Peninsula area languages, but questions the validity of its assumptions and expresses doubts about its usefulness (McElhanon 1969-70).

Having seriously questioned the value of the lexicostatistical method for the classification of the languages of the Huon Peninsula area, and, by implication, of Papuan languages in general, McElhanon advocates the study of typological and structural criteria for this purpose. He suggests that such criteria are particularly useful when a number of structural features form a set or block which is associated with a group of languages. On this basis, he finds it relatively easy to subdivide the languages of the Huon Peninsula Group - i.e., what is now recognised as the Huon Peninsula Stock (McElhanon and Voorhoeve 1970) - into two families along lines which are grossly at variance with the results of their lexicostatistical assessment and of the principles of lexicostatistical classification in general (McElhanon 1970). At the same time, a couple of obviously highly mixed languages are left whose exact classificatory position still remains indeterminable, and McElhanon points out that the final decisions in such cases are unavoidably arbitrary.

The present writer is generally in agreement with McElhanon's opinions on the subject, though he is inclined to take a somewhat more moderate view.

5.4. CRITERIA FOR THE CLASSIFICATION OF PAPUAN LANGUAGES

In the light of all that has been said so far in this chapter, two languages X and Y which share lexical cognates and/or show other similarities, will be regarded as genetically related if the following criteria apply:

5.4.1. LEXICAL CRITERIA:

A) For language areas in which at least some comparative linguistic work, with reconstructions, has been carried out (e.g. the Trans-New Guinea Phylum area):

a) A number of the lexical items in Y can be shown to constitute reflexes of proto-forms reconstructed for the language group to which X belongs, and are, in the case of obviously only distant relationship, not just simple copies of the forms of these items in X when allowing for the phonological differences between the two languages on the synchronic level.

b) The lexical items of Y mentioned under a) contain at least one verb, most importantly "eat" or "say, speak", and at least two of the set of pronouns present in Y, most importantly pronouns denoting the first or second persons singular or the first person plural, less so that of the third person singular.

c) The nouns amongst the lexical items of Y mentioned under a) contain at least some of the following: "arm (or hand)", "bone", "breast (female)", "ear", "eye", "fire", "louse", and "mother", "skin" and "water", and do not lack a high proportion of these while a considerable number of other nouns in Y constitute reflexes of the X group proto-forms. The nouns listed have been found through empirical observation, to be more commonly cognate in related Papuan languages than others.

d) Semantic groupings of lexical items as observable in X are also present in Y even if the items concerned are themselves non-cognate.

B) For language areas for which no comparative linguistic work has been carried out, criterion

a) reads: a number of the lexical items in Y appear to be cognate to their equivalents in X and,

in the case of obviously only distant relationship, the sound correspondences observable in such apparently cognate items seem to go beyond sound changes attributable to the phonological differences between the two languages on the synchronic level. Criteria b), c) and d) apply as under A).

5.4.2. TYPOLOGICAL AND STRUCTURAL CRITERIA

a) A number of typological and/or structural characteristics and features are shared by the languages Y, and X and other languages of the group to which X belongs. Of such shared characteristics, those connected with the structure and typology of verb forms are of particular importance and have greater diagnostic value than others except that the sharing of principles underlying the formation, distribution and function of verb forms has also high diagnostic value even if the verb forms concerned are formally different in the languages X and Y. At the same time, the sharing of principles underlying pronominal systems has also considerable diagnostic importance even if the pronouns themselves are formally different in the languages Y and X.

b) No typological and/or structural features are present in languages Y or X which are so contradictory as to be deemed incompatible and mutually exclusive, and which affect the basic verb structure and/or principles underlying it, and/or the principles underlying pronominal systems.

Note: this criterion b) is of low diagnostic value because its applicability is very much dependent on personal judgment, and because of the fact that the influence of substrata in Papuan language may in cases manifest itself on this very level.

5.4.3. OTHER CRITERIA

In the application of the criteria listed in 5.4.1. and 5.4.2. to a given situation involving two languages, cumulative evidence is important, and negative and positive evidence are mutually cancelling to a degree. In this, the criteria mentioned in 5.4.1. A) b), c), have much greater importance than that referred to in 5.4.1. A) a) if the latter appears by itself only without including b) and c). The criterion referred to under 5.4.1. A) d) is important, but only if other criteria pointing to the probable presence of a genetic relationship between the two languages are also observable.

Of the criteria discussed in 5.4.2., a) is much more important than b), and in general, the criteria listed in 5.4.2. take precedence over those given in 5.4.1., especially in doubtful cases, but their application is of somewhat dubious validity if none of those given in 5.4.1. provides positive evidence in a comparison of two given languages, unless 5.4.2. a) supplies formal structural evidence on the verb level, preferably accompanied by some on the pronominal level as well.

There may still be cases in which even the application of all these criteria may not yield unambiguous results, be it on whether languages X and Y are genetically related, or on whether the genetic relationship between Y to X should be regarded as closer as that prevailing between Y and Z, with resulting implications upon the classification of Y. Such cases have to be decided on their merits by the classifier's judgment in the light of his experience with Papuan language classification.

To complete the picture, it may be mentioned that the nature and extent of the relationship of one of two languages studied for classificatory purposes, to a third language may sometimes decide difficult issues: if it appears that the relationship of Y which shows relationship links with X, is more plausible with Z in terms of what could be regarded as the "dominant component" of Y at least for this given situation, it seems more appropriate to classify Y as related to Z rather than to X.

5.4.4. ILLUSTRATIVE EXAMPLES OF THE APPLICATION OF THE CRITERIA IN DOUBTFUL CASES

Languages of the Sko Stock in the northern border area between West Irian and the Western Sepik District of Australian New Guinea, in particular Sko itself, contain a number of lexical items which are clearly proto-Trans-New Guinea Phylum reflexes, amongst them one verb ("sleep") and three pronouns, amongst them the very basic pronouns of the first person singular, and plural, At the same time, of the important nouns mentioned in 5.4.1. A) c), "bone", "eye", "fire", "louse" and "skin" are not proto-Trans-New Guinea Phylum reflexes, and "ear" is doubtful. On the basis of this lexical evidence, Sko could perhaps well be regarded as an aberrant member of the Trans-New-Guinea Phylum. However, it shares little with the languages of the phylum on the typological and structural levels, and shows typological and structural features in its basic verb structure which are entirely at variance with Trans-New Guinea Phylum characteristics. It has therefore been decided not to include the Sko Stock in the Trans-New Guinea Phylum in spite of the strong Trans-New Guinea Phylum lexical element in it which extends to verbs and pronouns.

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Members of the Pauwasi Stock in north-eastern West Irian which Voorhoeve (1971) regards as unrelated to the Trans-New Guinea Phylum, have been found by the present writer to contain a little more lexical items which are proto-Trans-New Guinea Phylum reflexes than Sko. These items include one verb ("eat") and two important pronouns (first and second person singular), and of the important nouns listed in 5.4.1. A) c), only "ear", "fire", "skin" and "water" are not proto-Trans-New Guinea Phylum reflexes. This is a better lexical evidence than that presented by Sko which lacks four (or five) of the eight more important diagnostic nouns whereas the Pauwasi languages lack only two, and which contains the verb "sleep" as a Trans-New Guinea Phylum reflex whereas the Pauwasi languages have "eat" which is diagnostically more important (see 5.4.1. A) b)). Sko presents somewhat better evidence than the Pauwasi Phylum languages on the pronominal level only. Unfortunately, the typological and structural characteristics of the Pauwasi Stock languages are not known, but on the basis of the good comparative lexical evidence, it has been tentatively decided to include them into the Trans-New Guinea Phylum on the sub-phylum level.

The languages of the Kwomtari Stock in the north-eastern part of the West Sepik District of Australian New Guinea contain about as many lexical items which are proto-Trans-New Guinea Phylum reflexes as is the case with Sko. Amongst these are two pronouns (first and third person singular), but no verbs. Of the nouns listed in 5.4.1. A) c), "ear", "louse" and"skin" are not Trans-New Guinea Phylum reflexes, and "eye" is doubtful. The structure of the language is comparatively simple which in itself constitutes a deviation from the general Trans-New Guinea

Phylum pattern, and no striking agreements, nor disagreements, with Trans-New Guinea Phylum typological and structural characteristics and structural principles have been observed. On balance, it seems best to exclude the languages of the Kwomtari Stock from the Trans-New Guinea Phylum, and this solution has been adopted.

6. LANGUAGE MIGRATIONS

By inference from what has been said in chapters 4 and 5, it seems obvious that the classification of the Papuan languages is best understood in the light of migrations of languages which has brought about the strong mutual influences and mixing of these languages. As languages advanced into an area, they influenced others, displaced them, and were superimposed upon them until the original languages were only present in the form of substrata. Such events are taking place right now in many parts of the Papuan language world where the language spoken by the children in given communities shows profound influences of another immigrant language which for sociolinguistic reasons is beginning to replace the original language of the community, mainly on the lexical level, but also sometimes on some other levels.

Of particular interest in this is the presence of over a dozen Austronesian loanwoards - some of them in an Eastern Oceanic form - in Papuan languages in the far interior and in the west of the New Guinea mainland, a long distance away from the nearest Eastern Oceanic Austronesian language. Some of these words are cultural items such as "pig", and "dog" may come close

to the same category, but some are basic vocabulary elements such as "tooth", "breast", etc. They seem to indicate that in comparatively recent times in terms of Papuan linguistic prehistory, an east-to-west language migration took place through a large portion of the central part of the mainland, with this language migration originating in the Markham Valley area under an Austronesian, probably Eastern Oceanic, impetus. There is additional linguistic evidence available on the structural level to support the assumption of such a language migration which can be mapped out in some detail, and there is also interdisciplinary evidence in its favour such as the recent discovery by prehistorians (J. Golson, personal communication) that the presence of the pig in the New Guinea mainland may date back to only 5000 years or less which is approximately the date at which the Austronesians are believed to have entered the New Guinea area (Wurm 1967).

On the basis of the available linguistic and interdisciplinary evidence, the past language migrations in the New Guinea area can tentatively be suggested to have been as follows:

It appears that the antiquity of man in the New Guinea area is of the order of 60000+ years (Golson 1966a,b) and it may perhaps be possible to suggest that at least some of the isolates and small groups as well as the languages of the Torricelli Phylum, are directly descended from very old languages, or at least contain very old substrata. Of the substrata observable in - mostly aberrant and subphylum level - members of the Trans-New Guinea and Sepik-Ramu Phyla, some may be quite old too, and the same may

well apply to some of the elements met with in the West Papuan and East Papuan Phyla. In general, however, it seems unlikely that the bulk of the language elements present in the Trans-New Guinea and Sepik-Ramu Phyla have been longer in the New Guinea area than perhaps 10000 years or less, with the time-depth probably somewhat greater in the case of the West Papuan and East Papuan Phyla.

It seems impossible to even venture a guess at this stage as from where and by which route the very old languages and sub-strata referred to above may have entered the New Guinea area and spread within it. It seems only plausible to assume that they came through the island world to the west of the New Guinea area from a region yet to be determined. Inter-disciplinary evidence and the study of languages spoken by Negritos in south-east Asia and on the Andaman Islands may contribute to the solution of this problem. At this point, it may be appropriate to call the reader's attention again to Greenberg's (1960, 1971) work as a result of which he suggests a connection between the Papuan languages of the New Guinea area and the languages of the Andaman islanders.

The first tangible evidence referring to a much later, though well pre-Austronesian (i.e. well pre-3000 B.C.) date are indications given by the distribution of the pronoun sets mentioned in 4.1. It appears that the pronoun forms of the first basic set - and with it, an archaic lexical and at least in part also typological Trans-New Guinea Phylum element - may perhaps have entered the New Guinea area via Timor and Alor from where

they reached the Bomberai Peninsula and the south coast of the Vogelkop Peninsula, and proceeded east through the West New Guinea highlands to a central region around the present West Irian-Australian New Guinea border. It is in this general area that the pronominal forms fused from two elements as mentioned in 4.1. are mainly found - they seem to reflect a strong contact situation between the strata represented by the first basic pronoun set and associated features and the second basic set and the typological characteristics connected with it. Such contact situations may have been located both in the "neck" portion where the two language migrations seem to have crossed, and in the central and central southern part of the mainland.

From this central region, the element characterised by the first main set pronouns appears to have spread centrally to the east to a moderate extent, into the highlands of what is today Australian New Guinea, and to a much stronger extent to the south-east, perhaps as far as the Trans-Fly and - in addition to moving also in other directions (see below) - along an easterly route inland from the Papuan Gulf and then north into the Markham Valley and Finisterre Range-Huon Peninsula area. Archaic fused forms are also met with in that region. From there it appears to have penetrated into the highlands and moved westwards in them to some extent, and also to have proceeded into the south-eastern tail-end of the mainland quite strongly, spreading into New Britain and the islands to the east as well to quite some extent. It appears that the penetration of this language migration which could be referred to as the first Trans-New Guinea Phylum migration, into the south-eastern tail-end of New

Guinea dislodged another, earlier language group there which moved out to Rossel Island, east of the tail-end of the mainland, and to the New-Britain-New Ireland area, perhaps superimposing itself upon even earlier languages there: New Britain appears to have been originally inhabited by representatives of a Papuan culture, according to prehistoric evidence. From Rossel Island the displaced language group which left behind a clearly recognisable sub-stratum on the south-eastern tail-end of the mainland, seemed to have spread to the Bougainville and Vella Lavella Islands in the Solomon Islands chain, and largely from the latter to the New Georgia, Rendova, Russel and Savo Islands in the Solomons, and eventually into the Reef and Santa Cruz Islands far to the east. In consequence, all the Papuan languages located in the eastern island world are interrelated and form the East Papuan Phylum (see 3.4.2.) which is a distinct phylum though it shows quite noticeable traces of the influence of the displacing early Trans-New Guinea Phylum languages.

From the central region near the present West Irian-Australian New Guinea border mentioned before the language element under discussion appears to have spread also to the south-west, and finally to the north where it is typologically and lexically strong in evidence in the Lake Sentani area near the north-eastern coast of West Irian, though the pronouns have been replaced by those of the second and third basic sets. Voorhoeve (1969) found clear evidence in support of a closer connection between Sentani on the north-east and Asmat on the central

southern coast of West Irian, with the nature of the evidence pointing to the ancestral forms or form of both languages having been spoken in a low-lying swampy area. It seems possible to assume that the migrations referred to above may have separated the ancestral forms of Sentani and Asmat, with their ancestral area lying centrally in the present day West Irian-Australian New Guinea border area, perhaps in the Upper Sepik or the Upper Fly region, with the latter being perhaps more likely in view of the much stronger presence of an old Trans-New Guinea Phylum type of language in the south than in the north.

It also seems that the language migration under discussion may have moved to some extent to the north-east into the Sepik-Ramu area.

The pronoun forms of the second and third basic sets, along with the typological characteristics usually associated with the second set (4.2.) appear to have reached the New Guinea area via northern Halmahera and the northern main part of the Vogelkop Peninsula from where the second set of pronouns and the associated typological features seem to have spread into the "neck" portion of the western part of the New Guinea mainland and from there through the southern lowlands of present-day West Irian to what is today the south-east of West Irian and the Trans-Fly area on the Australian side. As a set of typological features, this stratum is also present further north in the centre of the mainland, and both in the pronoun forms and the typological features, was strongly in evidence in the northern central coastal and Sepik-Ramu areas. Too little is known about most of the languages of northern West Irian to make a suggestion

as to whether this stratum has reached the northern central coastal and Sepik-Ramu areas via a route from the neck-portion through what is today northern West Irian, or whether it came from the centre of the mainland. The former seems perhaps more likely. From the centre of the mainland, second basic set pronoun forms have to a limited extent, moved east through what is today the highlands of Australian New Guinea, into the south-eastern tail-end, and further east into the islands.

The pronoun forms of the third basic set seem to have moved from the Vogelkop Peninsula area along the northern coastal and near-coastal areas all the way across to the present-day Madang District area of Australian New Guinea. From there they appear to have moved southwards through the central part of the highlands area into the Papuan Gulf region, and to a limited extent into the south-eastern tail-end of the mainland and the islands. In the Madang District area and the mainland areas mentioned after it, the languages are members of the Trans-New Guinea Phylum and as such, generally of the type associated with the pronoun forms of the first basic set. The same applies to some of the central northern coastal languages. It may well be that, after moving out of the Vogelkop Peninsula area, the language migration carrying pronouns of this third set was, under Trans-New Guinea Phylum language influence, also carrying a somewhat aberrant form of the language type often co-occurring with the presence of pronouns of the first sets.

Of the two main language migrations mentioned above in connection with the pronoun forms of the first and second major sets, the second one may be assumed to have come earlier, because typological features and pronominal forms associated with it are met with in many instances as sub-stratum features in language groups attributable to the first, the Trans-New Guinea Phylum, migration. Also, the pronoun forms and typological features connected with the second migration mentioned appear in language groups which are regarded as archaic for a variety of reasons. The third migration connected with the pronoun forms of the third set may have been appreciably later than the second-set migration, and also post-dating the first i.e. west-to-east (see 7.) Trans-New Guinea Phylum language migration.

Following the assumed migratory movements outlined above, a major disturbing influence appears to have affected the linguistic picture of the New Guinea mainland as from approximately 5000 or fewer years ago in the shape of an Austronesian immigration centering on the Markham Valley. That area appears at that time to have been occupied by a later form of the original Trans-New Guinea Phylum languages which were characterised by certain sets of subject and object person markers with verbs, and certain typological features. These languages appeared to have started migrating quite extensively some time after the Austronesian contact which had been prolonged enough to leave a number of basic vocabulary Austronesian loanwords - some of them as has already been mentioned, of Eastern Oceanic type - in them. These migrations followed essentially three directions: north and north-west into the Huon Peninsula, Finisterra Range and the present-day

Madang District areas, and south-west into what is today the Eastern Highlands District as far as the Chimbu District border, and into the Kukukuku (or Anga) area further east where the originally probably unrelated languages of the Kukukuku people were replaced by a late Trans-New Guinea Phylum language with a strong sub-stratum. This subsequently developed into the Anga Stock. The migration into the present-day Eastern Highlands District area may have exercised some population pressure westwards and contributed to a westward expansion of the highlands languages into areas formerly unoccupied or occupied by speakers of languages penetrated there from the first Trans-New Guinea Phylum language migration, perhaps displacing such languages to the south into the area of the Papuan Plateau. The third migration direction was due west and seems to have followed the northern slope of the highlands ranges to the central hub area of New Guinea. All along these routes, and further west, the typological features and Austronesian loanwords are present. From the central hub area, the language migration appears to have continued in several directions: north and north-east into the present-day border area between West Irian and Australian New Guinea and the region to the east of it where the Trans-New Guinea Phylum languages superimposed themselves upon unrelated languages brought in earlier by the Sepik-Ramu Phylum migration (see below), or languages of other groups, leaving a marked influence upon them in terms of lexical, pronominal and typological features,

with this influence being so strong in some instances that the languages affected are now classifiable as members of the Trans-New Guinea Phylum. However, its influence is very weak in the Sentani Lake area in north-eastern West Irian. The language migration also seems to have moved to the south, south-west and south-east, down the Digul, Fly and Strickland Rivers where its influence is strongly in evidence in the Awju, Bedamini and Ok Families of the Central and South New Guinea Stock, and also in the Marind Stock. Its influence is still noticeable along the Lower Fly, and peters out in the Fly Delta area and the Trans-Fly. On the south-western side, its influence peters out west of the Eilanden River in the Kamoro-Sempan Asmat Family of the Central and South New Guinea Stock. In view of the weakness of the influence of this second, later, Trans-New Guinea Phylum migration in both the Asmat and Sentani language areas, it seems unlikely that the similarities between these two languages as observed by Voorhoeve (1969) (see above) may be attributable to this relatively late influence which is common to both.

The main direction of the continuation of the language migration under discussion seems however to have been towards the west into the highlands areas of West New Guinea right across to the "neck" portion of the mainland, and from there into the north-west extremity of the Bomberai Peninsula.

It could be thought of as a possibility that under the impact of this late Trans-New Guinea Phylum language of of the Vogelkop Peninsula type already located in the Bomberai Peninsula - such as languages of this type still found today east of that Peninsula in the "neck" portion - may, after being exposed to strong Trans-New Guinea Phylum influence, have been dislocated and may have moved into the Timor-Alor area. This could offer an explanation for the strong Trans-New Guinea Phylum influence in the languages of that area rather than the assumption that the original eastward Trans-New Guinea Phylum language migration might have come through the Timor area - the languages of that area may not really be different enough from the Vogelkop Peninsula languages to allow for the great time-depth required to quite justify this latter assumption. At the same time, Timor must have at the time of the later, westward, Trans-New Guinea Phylum language migration, already been occupied by Austronesian languages, and the location of the inland Papuan languages on Timor and Alor where they are encroached upon by the Austronesian languages which surround them may militate against their later intrusion - though they are concentrated in the north-eastern end of Timor which is closest to the Vogelkop Peninsula. This question still requires further study.

Quite independently from the Trans-New Guinea Phylum language immigration into the New Guinea area, and probably preceding it by a comparatively short span of time, another language immigration carrying the ancestral forms of the Sepik-Ramu Phylum languages appears to have entered the New Guinea mainland on the north coast approximately in the present-day West Irian-Australian New Guinea border area, and penetrated south, and then to the east and north-east as far as the country between

the lower Sepik and the Ramu. These languages appear to have been originally of a comparatively simple basic type, and this type is still largely preserved in the east where only little, if any, influence of the Torricelli Phylum languages is discernable in them. In the west, the languages have been subject to a succession of multiple influences from various sources. the unrelated languages and language groups probably ancestral to the area, the Toricelli Phylum languages which appeared to have pressed southward at some time. the first and the second Trans-New Guinea Phylum language migrations, and in the north, the Sko Stock languages which may be the latest to reach the area. As a result, the Sepik-Ramu Phylum languages show considerable diversity in their vocabulary and typology, though are recognizably interrelated, and the language fragmentation there, in relation to the size of the region, is amongst the highest in the New Guinea area, just as the average number of speakers per language is amongst the lowest.

The assumed southward movement of the Torricelli Phylum languages may well be attributable to the influence of the language migration which carried the pronoun forms of the third basic set (see above and 4.1.) along the northern coastal areas - or more probably the foothill areas because of the physical difficulties of moving along the coastal plains - to the present Madang District area and beyond. This is borne out by the fact that a unique blood type characteristic (Gerbich a negative) (Laycock, personal communication from P. Booth) of the present-day Torricelli Phylum language speakers and people of surrounding areas is also encountered amongst present-day Austronesian

speakers in the Markham Valley, obviously betraying the presence of a group of now Austronesianized, originally Torricelli Phylum language speakers there who may have, perhaps under pressure, moved ahead of the migration of the people carrying the language type characterized by pronoun forms of the third basic set and upon reaching the Ramu, followed it down and crossed over into the Markham Valley. It may be mentioned that the same blood group is also met with on the coast of the Papuan Gulf - directly to the south of the end-point of the presumed migration from the present-day Madang District area (see above) of the language type carrying the pronouns of the third basic set.

If it is true that this particular language migration was carrying a somewhat aberrant Trans-New Guinea Phylum language type as has been indicated above as a possibility, this may constitute an added explanation for the comparatively strong presence of Trans-New Guinea Phylum influence in much of the Sepik-Ramu and Torricelli Phyla areas.

A central group of speakers of ancestral Sepik-Ramu Phylum languages appeared to have moved south into the highlands area, perhaps under the pressure of the Torricelli Phylum language speakers who were moving south. In the highlands area, they appeared to have at a later stage come into contact with Trans-New Guinea Phylum languages and were quite markedly influenced by them. Subsequently, they moved north into the Middle Sepik area and to the north coast splitting the Torricelli Phylum languages into two sections through absorbing the connecting part which constitutes a substratum in them in the north. A small

third group of Torricelli Phylum languages is found further east on the northern coast of the present-day Madang District - perhaps more likely an old refugee group than the result of another break in the original Torricelli Phylum area as a result of the eastern end of the original Sepik-Ramu Phylum languages reaching the coast.

The present-day Torricelli Phylum languages are quite numerous, but relatively similar to each other which appears to militate against the assumption of their great antiquity in the area which has been suggested at the beginning of this chapter. The explanation of this problem may be that most of the original Torricelli-type languages were absorbed by other languages, and disappeared, as a result of the various language migrations referred to above, and only one or several very closely related languages survived to become the comparatively recent ancestral language(s) of the present-day Torricelli Phylum languages.

Amongst the small groups in the Western Sepik District, the languages of the Sko phylum-level Stock may perhaps be relatively late arrivals on the New Guinea scene. They are coastal languages with a tonal morphology which is unique in the New Guinea area, though they also show quite a strong Trans-New Guinea Phylum pronominal and lexical influence. The speakers of these languages use tacking sailing canoes which again are unique in the New Guinea area, and have their closest occurrences in present-day Indonesia.

This language group deserves careful comparison westwards as it seems not impossible that its origin or at least an element in it, may be traceable far to the west.

7. SUMMARY CLASSIFICATION OF THE PAPUAN LANGUAGES

7.1. INTRODUCTORY REMARKS

In the following, a listing of the hitherto established five major and five minor phylic groups of Papuan languages will be given, as well as of the stock-level groups within each of the phyla. With each stock (S) the number of families (F) - (including family-level isolates (f-l IS)) - and languages (L) belonging to it will be indicated separately. Though several references have been made to sub-phyla in the text of this paper it will not be shown here which of the stocks may constitute sub-phyla, i.e. are highly aberrant in some ways, because this problem is at present still under study, and full results are not yet at hand for a number of stocks of various phyla.

The total number of Papuan languages at least tentatively identified to date is 679 (possibly 693), with some uncertainty surrounding this figure because of difficulties connected with establishing the language versus dialect status of some communalects. As will be seen from the listing, the majority of the Papuan languages has been included in the Trans-New Guinea Phylum, and the five major phyla account for 92.34% of all known Papuan languages, with the Trans-New Guinea Phylum languages scoring 62.15%, the Sepik-Ramu Phylum ones 13.4%, the Torricelli Phylum ones 6.92%, the West Papuan Phylum ones 5.15%, and the East Papuan Phylum ones 4.71%. Only 26

languages make up the five minor phylic groups established to date (3.83%) and there are 26 isolates (also 3.83%).

All of Australian New Guinea is now linguistically known, at least to some extent, and it seems quite unlikely that more than perhaps half a dozen or so hitherto undiscovered languages may still be found there. In West Irian, some parts of the northern mainland section both east and west of the Mamberamo River are still linguistically unknown, and the population in those areas is known to be quite small, perhaps not exceeding 2000 people. It seems therefore unlikely that that area contains more than perhaps twenty to fifty or so languages, which would put the total number of Papuan languages in the New Guinea area to approximately 700-730 (perhaps + 14).

7.2. MAJOR UNRELATED PHYLIC GROUPS (5 phyla, 81S, 170F, 627L)

7.2.1. THE WEST PAPUAN PHYLUM

As has been pointed out in 3.4.1., the exact composition of this phylum is still under study. The following statements are tentative. They are in part based on Greenberg 1971.

WEST PAPUAN PHYLUM (5S, 15 or 16F, 35 or 36L + 14 possible L)

Timor-Alor stock (6f-1 IS, two of them doubtful, 6L)

East Vogelkop-Etna Bay Stock? (5 or 6F including two or three f-1 IS; 12 or 13L) (inclusion of Etna Bay area languages in this stock and in the West Papuan Phylum not clearly established)

West Vogelkop Stock (2F, 5L)

Ayamaru stock-level Isolate (1F, 1L)

North Halmahera stock-level Family (1F, 11L)

Greenberg (1971) quotes 14 additional language names, probably on the basis of Anceaux' fieldnotes. The status of these languages is now being checked. If they constitute separate languages, 8 are likely to be included with the East Vogelkop-Etna Bay Stock, 3 with the West Vogelkop Stock, and 3 with Ayamaru.

The earlier classification (Wurm 1971) which was based on much more restricted materials, showed a subdivision of what is now recognised as the West Papuan Phylum into a much larger number of stocks, and it may well be that the present classification is too generous in some instances in the treatment of some of the separate groups as family-level members of single stocks.

7.2.2. THE TRANS NEW GUINEA PHYLUM (44S, 100F, 422L)

The listing of the various stocks is generally from west to east and from north to south. The phylum occupies three-quarters of the New Guinea mainland.

TRANS NEW GUINEA PHYLUM

Tanah Merah stock-level Isolate (1F, 1L) (membership of Trans-New Guinea Phylum not clearly established)

Mor stock-level Isolate (1F, 1L) (membership of Trans-New Guinea Phylum doubtful, may belong to West Papuan Phylum East Vogelkop Stock)

Wissel Lakes-Kemandoga Stock (3F, 7L)

Dem stock-level Isolate (1F, 1L) (may prove to be a member of the Dani Stock)

Dani Stock (1F, 5L)

Tou stock-level Family (1F, 5L) (membership of Trans-New Guinea Phylum not clearly established)

Tor River Stock (2F including 1 f-l 1S, 8L)

Sentani stock-level Family (1F, 3L)

Nimboran stock-level Family (1F, 6L)

Goliath stock-level Family (1F, 3L)

Central and South New Guinea Stock (10F including 4 f-l IS, 37L)

Kayagar stock-level Family (1F, 3L)

Frederik Hendrik Island stock-level Family (1F, 3L)

Bulaka River stock-level Family (1F, 2L)

Marind Stock (3F, 8L)

Border Stock (3F, 12L)

Senagi stock-level Family (1F, 4L) (overlapping into West Irian)

Pauwasi Stock (4F including 2 doubtful f-l IS, 6L) (entirely in West Irian)

Oksapmin stock-level Isolate (1F, 1L) (membership of Trans-New Guinea Phylum doubtful)

Gogodala-Suki Stock (2F including 1 f-l IS, 3L)

Trans-Fly Stock (5F, 25L)

Turama-Kikorian Stock (2F, 4L)

Kutubuan Stock (2F, 3L)

East New Guinea Highlands Stock (6F, 50L)

Teberan stock-level Family (1F, 3L)

Pawaian stock-level Family (1F, 2?L)

Angan Stock (2?F, 12L)

Wanang Stock (3F, 5L)

Josephstaal Stock (4F, 6L)

Pihom Stock (5F, 15L)

Ismrud Stock (3F, 5L)

Mugil stock-level Isolate (1F, 1L)

Mabuso Stock (2F, 21L)

Astrolabe Bay Stock (2F, 14?L)

Rai Coast Stock (4F, 16L)

Biyom stock-level Isolate (1F, 1L)

Maruhia stock-level Isolate (1F, 1L)

Finisterre Stock (7F, 45L)

Huon Peninsula Stock (2F, 27L)

Goilalan stock-level Family (1F, 5L)

Binandere Stock (2F, one of them a f-l IS, 15L)

Koiari-Manubara-Yareban Stock (4F, 14L)

Dagan stock-level Family (1F, 8L)

Mailuan stock-level Family (1F, 5L)

7.2.3. THE SEPIK-RAMU PHYLUM

The listing of the stocks is as with the Trans-New Guinea Phylum. The phylum is located in the East and West Sepik Districts and overlaps into the western part of the Madang District.

SEPIK-RAMU PHYLUM (17S, 26F, 91L)

Biksi stock-level Isolate (1F, 1L)

Upper Sepik Stock (3F including 1 f-1 IS, 5L)

Yellow River stock-level Family (1F, 3L)

Ram stock-level Family (1F, 3L)

Tama stock-level Family (1F, 5L)

Leonard Schultze stock-level Family (1F, 5L)

Sepik Hill stock-level Family (1F, 16?L)

Middle Sepik Stock (3F including f-1 IS, 11L)

Gapun stock-level Family (1F, 2L)

Nor-Pondo Stock (2F, 6L)

Mongol-Langam stock-level Family (1F, 2L)

Yuat stock-level Family (1F, 5L)

Arafundi stock-level Family (1F, 2L)

Grass Stock (2F including 1 f-1 IS, 5L)

Ruboni Stock (2F, 8L)

Goam Stock (2F, 9L)

Annaberg Stock (2F including 1 f-1 IS, 3L)

7.2.4. THE TORRICELLI PHYLUM

Listing of stocks as before. The phylum is situated in three discontinuous areas in the East and West Sepik, and the Madang District.

TORRICELLI PHYLUM (7S, 13F, 47L)

West Wapei stock-level Family (1F, 3L)

Wapei-Palei Stock (3F including 1 f-1 IS, 20?L)

Maimai Stock (4F including 3 f-1 IS, 6?L)

Urim stock-level Isolate (1F, 1L)

Kombio Stock (2F, 9?L)

Kombio Stock (2F, 9?L)

Marienberg stock-level Family (1F, 6?L)

Monumbo stock-level Family (1F, 2L)

7.2.5. THE EAST PAPUAN PHYLUM

Listing of stocks as before. The phylum is located entirely in the island world to the east of the New Guinea mainland.

EAST PAPUAN PHYLUM (8S, 16F, 32L)

Anem stock-level Isolate (1F, 1L)
Panaras stock-level Isolate (1F, 1L)
North New Britain Stock (2F including 1 f-1 IS, 4L)

Kol stock-level Isolate (1F, 1L)

Yele-Solomons-Wasi Stock (5F including 2 f-1 IS, 9L)

West Bougainville Stock (3F including 2 f-1 IS, 5L)

East Bougainville Stock (2F, 7L)

Reef Islands-Santa Cruz stock-level family (1F, 4L)

7.3. MINOR UNRELATED PHYLIC GROUPS (5 phyla, 3S, 12F, 26L)

Their listing follows the principle laid down in 7.2.2. for that of stocks. For their geographical location see 3.5.

Sko phylum-level Stock (5F including 2 f-1 IS, 8L)

Kwomtari phylum-level Stock (3F including 1 f-1 IS, 5L)

Left May phylum-level Family (1F, 7L)

Inland Gulf phylum-level Stock (2F including 1 f-1 IS, 3L)

Eleman (or Touripi) phylum-level Family (1F, 5L)

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